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REMARKS

Claims 1-7, 16-22, 29, 30 and 34-38 are pending. By the present amendment, claim 1 has been amended to clarify that the polyethene which consists of 100% polyethene is in a component of an absorbent article. Claim 35 has been amended to clarify that the component of the packaging material comprises the polyethene. Support for these amendments may be found at least on pages 13-14 of the substitute specification filed May 9, 2003, entered by the Office Action mailed September 12, 2003. These amendments do not narrow the subject matter of claims 1 and 35. No new matter was added.

Claim Objections/ Claim Rejections under 35 U.S.C. § 112, second paragraph

According to the Office Action, should claims 1 and 35 be found allowable, claims 2 and 36 will be objected to under 37 C.F.R. § 1.75 as being a substantial duplicate thereof.

Claims 2-3 and 36-37 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. According to the Office Action, claims 2 and 36 appear redundant.

The objection to the claims and rejection under 35 U.S.C. § 112, second paragraph, are believed to be moot in view of the amendments to claims 1 and 35. As now specified, claim 1 is directed to a method of making an absorbent article, the method comprising producing polyethene from renewable raw material and using the polyethene in a component of the absorbent article. The polyethene used in the component of the absorbent article consists of 100% polyethene. Claim 1 does not require that the component of the absorbent article consists only of polyethene.

Claim 2 is directed to the method according to claim 1 wherein the component of the absorbent article consists of polyethene. Thus, this claim differs in scope from claim 1 which has polyethene in a component, but the component may include other materials as well.

Claim 3 is directed to the method according to claim 1 wherein the component of the absorbent article comprises from 50 to 99% of the polyethene. Thus, this claim differs in scope from claim 1 which has polyethene in the component, but the amount is not specified.

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Claim 35 was amended to recite that the component of the packaging material comprises the polyethene. Claim 35 does not require that the component of the packaging material consist only of polyethene.

Claim 36 is directed to the method according to claim 35 wherein the component of the packaging material consists of polyethene. Thus, this claim differs in scope from claim 35 in which a component comprises polyethene, but the component may include other materials as well.

Claim 37 is directed to the method according to claim 35 wherein the component of the packaging material comprises from 50 to 99% of the polyethene. Thus, this claim differs in scope from claim 1 which has polyethene in the component, but the amount is not specified.

In view of the amendments as discussed, Applicants respectfully submit that the objections to the claims and rejection under 35 U.S.C. § 112, second paragraph, are moot and respectfully request that such be withdrawn.

Rejection under 35 U.S.C. § 103(a)

Claims 1-7, 16-22, 29-30 and 34-38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's disclosure, Barrocas et al., U.S. Patent No. 4,232,179, Toms et al., U.S. Patent No. 5,417,679, Cargill, WO 94/07941, Klomp, U.S. Patent No. 5,176,669, Widlund, U.S. Patent No. 5,024,672, Sigl, U.S. Patent No. 4,582,550, and the definition of "polyethylenes", in the first paragraph of the Materials Handbook, Thirteenth Edition. Applicants respectfully request that this rejection be withdrawn.

The Art

Seven documents have been cited against the rejected claims, as well as portions of Applicants' disclosure. A brief discussion of each publication is provided.

Barrocas et al., U.S. Patent No. 4,232,179, relates to a process for preparing ethene. The process involves dehydrating ethyl alcohol using adiabatic reactors and a high temperature.

Toms et al., U.S. Patent No. 5,417,679, describes disposable absorbent articles with biodegradable backsheets. According to Toms et al., there is a particular need to replace polyethylene backsheets in absorbent articles with liquid impervious films comprised of biodegradable materials. *Column 1, lines 48-52.*

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Moreover, Toms et al. states that the addition of conventional non-biodegradable polymers (e.g., polyethylene) invariably slows down the rate of biodegradation, and hence the compostability of films containing non-biodegradable polymers. *Column 2, lines 62-66.*

Cargill (WO 94/07941) is directed to melt-stable lactide polymer films which are biodegradable. Such films are needed, according to Cargill, since films comprising polymers such as polyethylene and others are not biodegradable and are generally noncompostable. *Page 1, line 35 –page 2, line 3.*

Klemp, U.S. Patent No. 5,176,669, describes tapeless super-absorbent disposable diapers with standing leg cuffs which are an integral part of the absorbent article. The absorbent article of Klemp includes a fluid permeable topsheet, a flexible, absorbent body, a liquid impermeable barrier, and a backsheet. *Column 2, lines 19-24.* The liquid impermeable barrier is a thin film of polyethylene, polypropylene or other flexible moisture impeding material which is substantially water impervious. A biodegradable polyethylene or polypropylene film with starch, carbon or other non-synthetic additives intended to promote biodegradability can be used. *Column 4, lines 17-22.*

Widlund, U.S. Patent No. 5,024, 672, discloses a disposable diaper secured about a user by means of pressure-sensitive adhesive tape tabs and a plastic strip which may be of polyethylene or polypropylene.

Sigl, U.S. Patent No. 4,582,550, describes a method of making an elasticized garment including a flexible substrate which may be of polyethylene film. The elasticized article also includes a shrinkable means which may be of materials such as ethyl vinyl acetate, polypropylene, polyvinyl chloride, and low density polyethylene. *Column 3.*

The Materials handbook describes polyethylenes, ways of processing them and uses for polyethylenes.

Examiner's Rejection

The Office Action sets forth a number of contentions, each allegedly supported by portions of the cited art. To the best of Applicants' ability, the Office Action contends first that it is known to produce components of various absorbent articles from material produced from polyethene derived wholly or in part from petroleum products, i.e., non-renewable materials. *Office Action mailed April 22,*

2004, page 4, lines 5-8. Second, the Office Action contends that manufacture of a film or material, including polyethene, components of that film or material, absorbent articles from the components, film or material, alone or with other components, and methods of manufacture, including those of polyethene, are also known. *Office Action mailed April 22, 2004, page 4, lines 12-15.* Third, the Office Action contends that it is known to produce ethane from ethanol, a renewable material, and to produce polyethene from such ethane. *Office Action mailed April 22, 2004, page 4, lines 116-18.* The inference is then drawn that the invention is known except the use of renewable raw materials rather than non-renewable raw material in the manufacture of the polyethene used in absorbent articles. Thus, according to the Office Action, the invention is using a known material, polyethene from renewable materials, and processing it as known to manufacture components. *Office Action mailed April 22, 2004, page 4, line 22 – page 5, line 6.* Applicants disagree.

Applicants submit that the art cited by the Examiner has been improperly cited and that the portions of the specification cited by the Examiner do not have the meaning imparted thereto by the Examiner. To illustrate these points, each allegation of the Office Action is reviewed individually herein.

First allegation: It is known to produce components of various absorbent articles from material produced from polyethene derived wholly or in part from petroleum products, i.e., non-renewable materials. *Office Action mailed April 22, 2004, page 4, lines 5-8.*

Six references to art were made to support this allegation, plus citations to the present specification.

Toms et al. is cited for column 1, lines 23-27 and column 11, lines 54-57, which state:

Heretofore, such absorbent structures have been prepared using, for example, topsheet materials prepared from woven, nonwoven, or porous formed-film polyethylene or polypropylene material. Backsheet material typically comprise flexible polyethylene sheets.

Column 1, lines 23-27;

and

Importantly, the absorbent articles according to the present invention are compostable to a greater extent than conventional absorbent articles which employ a polyolefin, typically a polyethylene backsheet.

Column 11, lines 54-57.

Neither of the cited passages from Toms et al. supports the allegation made in the Office Action regarding the manufacture of polyethene. Rather, Toms et al. is directed to disposable absorbent articles with biodegradable backsheets comprising blends of an interpenetrated network of destructureized starch with ethylene/acrylic acid copolymers or ethylene/vinyl alcohol copolymers and an aliphatic polyester. *Column 3, lines 40-49*. Toms et al. specifically states that it was discovered that the addition of conventional non-biodegradable polymers (e.g., polyethylene) invariably slows down the rate of biodegradation, and hence the compostability of films containing the nonbiodegradable polymers. *Column 2, lines 62-66*. In view thereof, Toms et al. does not provide any teaching relevant to the allegation made in the Office Action.

Cargill was also cited to support this allegation. The Office Action refers to "Description of the Prior Art", but no support for the allegation as set forth is found therein. Rather, Cargill states:

In light of depleting landfill space and adequate disposable sites, there is a need for biodegradable films. Currently, films comprising polymers such as polyethylene, polypropylene, polyethylene terephthalate, nylon, polystyrene, polyvinyl chloride and polyvinylidene chloride are popular for their superior extrusion and film-making properties. However, these films are not biodegradable. Furthermore, these films are generally noncompostable, which is undesirable from an environmental point of view.

Page 1, line 35 – page 2, line 5.

Nothing in Cargill supports the allegation made in the Office Action regarding the manufacture of polyethene. Cargill is directed to melt-stable lactide polymer films and processes for the manufacture thereof. Cargill specifically teaches away from the use of polyethene or other nonbiodegradable films. In view thereof, Cargill does not provide any teaching relevant to the allegation made in the Office Action.

In support of the above allegation, Klemp also was cited. The section referred to in the Office Action reads as follows:

The liquid impermeable barrier 17 is a thin film of polyethylene, polypropylene, or other flexible moisture impeding material which is substantially water impervious. A biodegradable polyethylene or polypropylene film with starch, carbon or other non-synthetic additives intended to promote biodegradability can be used. A film formed from 5-20% starch blended with polyethylene and having thickness of 0.6 to 0.8 mil is preferred. As shown in FIGS. 3 and 4, the impermeable barrier 17 folds and extends over the first and second side edges 26 and 27 of the absorbent body 13 forming side dams 19. Preferably the

Impermeable barrier extends over the absorbent body 13 by 0.5 inches.

The backsheet 20 forms, in use, the outer surface of the diaper and protects the impermeable barrier from cuts and tears. It can be made, exclusively or in combinations, of a wide variety of soft, flexible materials, including polyester, rayon, cotton, polyethylene and polypropylene.

Column 4, lines 17-35. Nothing in this passage supports the allegation made in the Office Action regarding the manufacture of polyethylene. Rather, Klomp is directed to a tapeless super-absorbent disposable diaper which may have a liquid impermeable barrier which is made from a biodegradable material. In view thereof, Klomp does not provide any teaching relevant to the allegation made in the Office Action.

Widlund '672 was further cited in support of the above allegation. Widlund '672 is directed to a disposable diaper with a particular tape tab fastening means. This patent was cited for the following passages:

A number of different attempts have been made to solve this problem. One method has been to reinforce the liquid-impermeable layer, which layer consists, as was mentioned above, usually of a thin polyethylene layer, which because of its low strength is easily stretched and tears when pulled. European Patent Application 9278 for example describes a diaper in which the plastic outer layer has been reinforced in the tape fastening zone with an adhesive coating applied to the inside thereof, said coating having a higher tensile strength and stretching less than the plastic layer.

The plastic strip(s) can suitably be of material, preferably polyethylene or polypropylene, having a tear strength greater than that of the backside of the diaper plastic outer layer. By virtue of the fact that the plastic strip(s) according to the invention is(are) inelastic, there is no stretching when a tape tab attached thereto is pulled off.

Column 1, lines 43-53 and column 3, lines 7-13. As with the other passages cited, nothing in Widlund '672 supports the allegation made in the Office Action regarding the manufacture of polyethylene.

Sigl '550 was cited for the following:

...However, the temperature level required to shrink the heat shrinkable elastic is above the tolerance level of some substrate materials commonly used in making disposable garments, particularly polypropylene and polyethylene films, and so it is difficult to use heat shrinkable elastic with these substrates.

The flexible substrate 2 may comprise a wide variety of materials, depending on the ultimate use of the elasticized article, and

will typically be of a material that can be provided in a thin film form. Preferred materials for fabricating disposable diapers are polyethylene film having a maximum thickness of about 5 mils and nonwoven fibrous polypropylene sheeting having a basis weight of from 0.5 to 1.25 oz./yd. The shrinkable means 6 may be of a material which has a stable extended condition, is preferably non-electrometric, and is responsive to heat to shrink to a relatively stable contracted condition. Suitable materials include heat shrinkable oriented film materials such as ethyl vinyl acetate, polypropylene, polyvinyl chloride, and low density polyethylene. In selecting a heat shrinkable material it is critical that the temperature at which the material shrinks is lower than the heat distortion temperature of the substrate material to which the shrinkable material is bonded. For a polyethylene substrate, the heat distortion temperature is about 250°F.

Column 1, lines 54-60 and column 3, lines 34-48. As with the other citations, nothing in the above cited material addresses the production of polyethylene. While these passages indicate that polyethylene was used for disposable products, nothing in any of the above cited patents or publications would have led one of skill in the art to any conclusions regarding the manufacture of polyethylene, except possibly that other materials altogether should be used since polyethene is not biodegradable.

The final citation is to the definition of "polyethylenes" in the first paragraph of the Materials Handbook. Again, this paragraph does not address methods of manufacture of polyethene.

The Office Action also cites to the specification for support for the first allegation stated above. However, the specification may not be used against the claims unless applicant specifically states that something is prior art. *See MPEP § 2129.* The sections cited are as follows:

The components of the absorbent articles are all those that can be produced from polyethene and other conceivable components that may possibly be produced from polyethene. Examples of components produced from polyethene are plastic sheets that function as liquid impermeable backing sheets on absorbent articles, waist elastic in diapers, top sheets on sanitary napkins and panty liners, and tape used as diaper fastening means.

Part of a packaging unit may comprise film material that includes polyethene. When the packaging unit is comprised of several parts, it is not necessary for all of these parts to consist of said material, e.g., they may include another type of plastic film or some other suitable material.

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Polyethene is used as material in components of the article, e.g., as liquid-impermeably backing sheets, outer sheets, diaper fastening tape, or as waist elastic.

Page 10, lines 1-2. None of the cited language from the specification relates to the manufacture of polyethene, just its use in various articles.

Thus, although all of the foregoing are cited to support the allegation that it is known to produce components of various absorbent articles from material produced from polyethene derived wholly or in part from petroleum products, i.e., non-renewable materials, none of cited art sections actually disclose or suggest such contention.

Second allegation: Manufacture of a film or material, including polyethene, components of that film or material, absorbent articles from the components, film or material, alone or with other components, and methods of manufacture, including those of polyethene, are also known. Office Action mailed April 22, 2004, page 4, lines 12-15.

The support for this contention is allegedly found in the specification, in Toms et al., in Cargill and in the definition of "polyethylenes" from the Materials Handbook. However, Applicants do not dispute that polyethene may be used in the manufacture of absorbent products. This, however, does not result in the obviousness of the invention as defined in the claims.

Third allegation: It is known to produce ethane from ethanol, a renewable material and to produce polyethene from such ethane. Office Action mailed April 22, 2004, page 4, lines 116-18.

The specification and Barrocas et al. were cited for the above contention. The section cited from Barrocas et al. reads as follows:

The present invention relates to the preparation of ethene, based on a process for dehydrating ethyl alcohol.

More particularly, the object of the invention is the production of ethene in the presence of catalysts, using adiabatic reactors and a high temperature. Such adiabatic reactors may be used in parallel or may be arranged in series or arranged in assemblies of parallel series, or still only a single reactor may be used.

The first records on dehydration of ethyl alcohol remounts to the XVIIIth Century, when ethene was obtained in the laboratory by passing ethyl alcohol over a heated catalyst. With the advent of plastic

industry, ethene has become an essential raw material. In the thirties and forties of the present century several dehydrating units of ethyl alcohol were built which remained in operation up to the sixties.

However the situation was reversed due to appearing of processes for obtention of ethene from naphtha cracking. Ethene, instead of being obtained from ethyl alcohol is now the raw material for the manufacture of ethyl alcohol.

The world crisis of petroleum supply which occurred in 1973 brought as a consequence substantial increase in the cost of crude oil and its derivatives, thus rendering competitive the manufacture of ethene from ethyl alcohol. It may be thus foreseen that the methods which employ a renewable supply, such as alcohol obtained by fermentation of carbohydrates as raw material shall become more important in the future as the world petroleum reserves are being depleted.

Column 1, lines 4-34. Barrocas et al. does not discuss or mention the production of polyethene. Barrocas et al. is directed only to a process for preparing ethene and mentions that it may be foreseen that methods which employ a renewable supply shall become more important.

The sections of the specification referred to in the Office Action state as follows:

Ethanol is renewable when it is produced from a reproducible plant (*Plantae*). Sugar is converted to ethanol and carbon dioxide by fermentation under the influence of yeast fungi:

$C_6H_{12}O_6 \rightarrow +2 C_2H_5OH + 2 CO_2$. Potatoes, seed, forest raw materials or other plants are used in the fermentation process. Every fruit, berry, or plant constituent that includes sugar can be fermented.

Ethene is produced from the renewable ethanol, by dehydrating ethanol for instance. Alcohol loses a water molecule and forms alkene when heated with a strong acid. Ethanol is heated to 180°C with concentrated sulphuric acid:

C_2H_5OH (conc. H_2SO_4 , 180°C) $\rightarrow C_2H_4 + H_2O$.

Polyethene which can be produced from the renewable ethene in the aforescribed manner, is already known in the art. It is also known to produce ethene from ethanol in the manner described above.

Specification, page 9, lines 6-17. This section of the specification sets forth the invention whereby renewable ethene is used to produce an environmentally friendly product, where the ethene is produced from a renewable raw material, such as ethanol. The section then describes the process for making ethene and states that polyethene may be produced from renewable ethene in the same way as detailed by the process for production of polyethene for nonrenewable materials set forth on

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page 6, line 14 to page 8, line 18. Thus, this paragraph means that the polyethene according to the present invention can be produced from renewable ethene in the same way as polyethene earlier was produced from not renewable material, not that the process of producing renewable ethene to make polyethene was known.

The second section from the specification cited in the Office Action for this contention reads:

Ethanol is produced from a plant in a conventional manner and ethene is produced from the ethanol as described above. The ethene is then polymerized to polyethene, as described above. The components to be included in the absorbent article are then produced. The component produced may be film for use in producing the liquid-impermeable backing sheet of an article. Film may be produced by a film blowing process, by a molding process, or by cold roll extrusion. The film is then introduced into the article manufacturing process in a conventional manner in which the film is applied to the article, e.g., in a diaper manufacturing machine. Alternatively, the component can be produced in some other way, e.g., as components for use as top sheets described above. After manufacture, the component is introduced into the article production line.

Specification, page 16, lines 8-17. This section does not support the Examiner's contention that it is known to produce ethane from ethanol and to produce polyethene from that ethane. Rather, this section just refers to the description above and describes the manner of producing and using the polyethene in an article.

As noted above, the Examiner alleges that the invention is using a known material, polyethene from renewable materials, and processing it as known to manufacture components and all of the above citations provide a basis for this ultimate conclusion. However, as now shown in detail, none of the cited art actually provides any support for the intermediate contentions or the final assertion of the Office Action that the invention as defined in the rejected claims is obvious.

Claim 1 is directed to a method of making an absorbent article wherein the method comprises producing polyethene from renewable raw material. Claim 16 relates to a method of producing an absorbent article including producing ethene from renewable raw material, polymerizing the ethene to polyethene, producing film containing said polyethene and forming at least one article component from the film. Independent claim 35 is directed to a method of making a packaging material including producing polyethylene from a renewable raw material. None of the cited art shows such steps.

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The Materials Handbook discusses means of processing polyethylenes. Sigl describes elasticized garments, not polyethene from renewable material. Widlund is directed to a fastening means, mentioning polyethylene as a possible backsheet material. Klomp is directed to a particular design for a diaper, disclosing a biodegradable polyethylene and starch combination. Cargill teaches away from the use of polyethene no matter how made in teaching the need for a biodegradable film. Toms et al. describes biodegradable backsheets and the disadvantages of polyethylene. Thus, the only citations which even refer to a step as claimed are taken from the application itself, which is impermissible when no admission is present. See, *MPEP* § 2129 and *In re Wertheim*, 191 USPQ 90 (CCPA 1976). The citations to the specification are misplaced in view of the complete context of the application, wherein the methods of producing ethene from nonrenewable methods are described and then the invention, producing polyethene from renewable raw material and using the polyethene in a component of an absorbent article is detailed.

As set forth in the Summary of the application, the object of the present invention is to provide an absorbent disposable product and a packaging material that is more environmentally friendly than their known counterparts. This object is achieved in accordance with the invention by the use of a material which contains polyethene and which is produced from renewable raw material. *Specification, page 3, lines 1-5*. The application further refers to the invention as relating to the use of material that contains polyethene produced from renewable raw material as a component of a variety of products. *Specification, page 4, lines 10-19*. The application describes present production methods for polyethene as made from ethane derived from natural gas to crude oil. *Specification, page 6, line 13 – page 9, line 3*. Then, the application states that according to the invention, renewable ethene is used to produce an environmentally friendly product, where the ethene is produced from a renewable raw material, such as ethanol. This process is described and the application states that polyethene which can be produced from the renewable ethene as described may be made by the processes detailed earlier using petroleum based products, which processes are known. Applicants do not admit that producing polyethene from renewable ethene is known, only that producing polyethene from nonrenewable ethene is known. In fact, the application states that on an industrial scale, it was not known to use polyethene produced from renewable

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raw material for the manufacture of environmentally friendly absorbent articles and environmentally friendly packaging materials. *Specification, page 10, lines 13-15.*

As shown in detail, none of the cited art would have made the invention as defined by the rejected claims obvious since the contentions stated to be supported by that art are not, in fact, disclosed in, or described by, any of the cited art. The Examiner's reliance on the specification itself is misplaced, interpreting the language in a way not intended. In view thereof, Applicants submit that the invention as claimed would not have been obvious from the cited art, alone, or in combination, and respectfully request that this rejection be withdrawn.

For the foregoing reasons, Applicants believe entry of this Amendment would put the application in condition for allowance. Thus, it is respectfully requested that the Amendment be entered, and a Notice to this effect be provided. If any questions remain, the Examiner is invited to contact the undersigned at the below-listed telephone number.

Respectfully submitted,

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